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AGÉ, Sceloporus (undulatus, clarki) (at matur.) 1-18; Amphiprion clarkii, Centropyge tibicen, Lactoria diaphana, Dendrochirus zebra, Plectorhynchus pictus (longevity of individuals at specific sites) 135-139; Crocodylus niloticus (age determ. by osteoderm laminae) 332-341; Chelonia mydas (at sex. matur.) 798-802; Saurida (undosquamis, longimanus, sp. 1, sp. 2) at sex. mat., short lifetime) 876-885; Hemidactylus turcicus (at sex. matur.) 956-962.

BEHAVIOR, Padogobius martensi (sounds made during courtship & terr. defense) 213-216; Pseudemys nelsoni (feeding rates higher in a group) 234-235; Desmognathus fuscus (substrate choice experiment) 235-237; Rana utricularia, Limnaoedus ocularis, Pseudacris ornata, Bufo terrestris (interspecific spatial avoidance of larvae) 408-423; Atelopus varius (homing & terr. after exp. manip. in natural hab.) 438-444; Poecilia latipinna (detection of fertile females by males) 467-472; Sauromalus hispidus (high extracell, K+ affects thermoreg, & feeding) 518-520; Ictalurus nebulosus (aggression suppressing pheromone) 540-544; Necturus maculosus (beh. thermoreg.) 612-618; Anguilla rostrata (anal. of spinning while feeding) 679-685; Hyla crucifer (adapt. signif. of breeding non-calling males) 719-724; Ambystoma texanum (absence of territor.) 725-730; Chelydra serpentina, Malaclemys terrapin, Kinosternon subrubrum, Sternotherus odoratus, Clemmys guttata, Trionyx (muticus, spiniferus), Chrysemys picta (beh. osmoreg. in estuarine water) 741-756; Crotalus viridis oreganus (strike description) 816-820; Mustelus canis (tonic immobility) 829-832; Pseudotropheus barlowi n. sp. (gold color & territor.) 870-875; Anolis chlorocyanus (head bob displays) 963-970; Sceloporus jarrovi (thermoreg. beh.) 971-979; Holbrookia propingua (male resp. to female colors) 980-986; Clemmys insculpta (stomping for earthworms) 1001-1004; Osteopilus septentrionalis (cannibalism) 1007-1009.

BLOOD, Carcharodon carcharias, Isurus oxyrinchus, Carcharhinus (plumbeus, obscurus), Galeocerdo cuvieri, Prionace glauca, Sphyrna lewini, Alopias vulpinus (hemoglobin & hematocrit levels) 700-705. CALLS, Hyla (andersonii × cinerea, andersonii × femoralis) (hybrid calls) 70-76; Hyla crucifer (calling vs non-calling males) 719-724; Ololygon (danae n. sp., exigua n. sp.) 864-870; Opsanus tau (physiol. of sonic muscle) 910-915; Rana (a. aurora, a. draytonii, boylii, cascadae, muscosa, pretiosa) (anat. of vocal sacs) 927-936.

CANNIBALISM, Osteopilus septentrionalis (by larvae during metamorph.) 1007-1009.

CHROMOSOMES, Hyla (andersonii × cinerea, andersonii × femoralis) (kar. anal. of hybrids) 70-76; Hybopsis aestivalis, Nocomis leptocephalus, Notemigonus crysoleucas, Notropis (amabilis, buchanani, camurus, longirostris, lutrensis, oxyrhynchus, potteri, shumardi, venustus), Pimephales notatus, Carpiodes carpio, Ictalurus punctatus, Noturus gyrinus, Gambusia affinis, Lepomis (humilis, macrochirus), Percina sciera, Mugil cephalus (GC-specific fluorochromes stain fish NORs) 226-231; Oryzias mekongensis (kar.) 473-478; Rana palustris (triploid individual) 531-533; Gaidropsarus mediterraneus (kar. var.) 826-829; Prietella phreatophila (kar.) 1024-1028.

COLORATION, Hyla crucifer (change to match background) 109-115; Pseudotropheus barlowi n. sp. (gold color & territor.) 870-875; Holbrookia propinqua (male resp. to female colors) 980-986; Acris crepitans (polymorph.) 995-999; Hyla smithii (of larval tail, relat. to pred.) 1004-1006.

COMPETITION, Desmognathus (quadramaculatus, monticola, fuscus, ochrophaeus) (for burrows, affects community compos.) 731–741.

DENTITION, Hypsoblennius (ionthas, hentzi), Hypleurochilus geminatus, Parablennius marmoreus (relat. to diet) 207–213.

DEVELOPMENT, Ambystoma jeffersonianum, Bufo woodhousei, Rana sylvatica, Hyla andersoni (effect of low pH on embryos & larvae) 454-466; Squatina californica (embryonic) 987-994; Cichlasoma citrinellum (ontogen. changes in feeding morph.) 1028-1030.

DISTRIBUTION, Scomber japonicus (relat. to temp. tolerance) 39-44; Etropus (cyclosquamus n. sp., crossotus, microstomus, rimosus) (season. var.) 140-156; Evermannichthys (metzelaari, spongicola) (of sponge-dwelling fishes) 157-165; Rana septentrionalis (correlation of environ. requirements for reprod. and s. limit of distr.) 239-244; Echidna zebra, Aulostomus chinensis, Fistularia commersonii, Mugil (cephalus, curema), Priacanthus (alalaua, arenatus, boops, cruentatus), Coryphaena hippurus, Gnathanodon speciosus, Zanctus cornutus, Alutera scripta, Arothron (hispidus, meleagris), Diodon holocanthus (dispersal or vicariance in trans-Pacific

allopat. popns.) 275-284; Ambystoma jeffersonianum, Bufo woodhousei, Rana sylvatica, Hyla andersoni (effect of low pH on local distr.) 454-466; Ceratias (tentaculatus, holboelli, uranoscopus), Cryptopsaras couesi 479-493; Centropomus (pectinatus, medius, undecimalis, nigrescens, viridis, poeyi, parallelus, mexicanus, unionensis, armatus, robalito, ensiferus) 579-611; Osornophryne (talipes n. sp., percrassa, bufoniformis) 618-622; Etheostoma (whipplei, radiosum) 631-641; Pimelodina flavipinnis, Aguarunichthys torosus 653-672; Pterois (volitans, miles) 686-690; Clupea (harengus, pallasi) (evidence of sympatry) 714-719; Nerodia sipedon insularum (on Lake Erie islands) 757-772; Pseudotropheus barlowi n. sp. 870-875; Phycis chesteri (Grand Bank, Labrador Shelf) 886-891; Rana (a. aurora, a. draytonii) (of vocal sac conditions) 927-936.

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jeffersonianum, Bufo woodhousei, Rana sylvatica, Hyla
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Hemidactylus turcicus (eggs adapted for colonization) 956-962; Sceloporus undulatus (effect of cold
on devel. & surviv.) 1012-1014; Aphredoderus sayanus (carried in branchial cavity) 1030-1031.

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odon holocanthus (genet. distance between trans-Pacific allopat. popns.) 275-284; Kinosternon (bauri, subrubrum, herrerai, hirtipes, sonoriense, flavescens, alamosae, integrum, scorpioides, oaxacae, acutum, leucostomum), Staurotypus triporcatus, Claudius angustatus, Sternotherus (odoratus, carinatus, depressus, minor) (systematics of family) 285-294; Eleutherodactylus (fitzingeri, melanostictus, rayo, crassidigitus, talamancae) (construct cladogram, PAUP program) 503-511; Ictalurus (lupus, punctatus) (evid. for valid sp.) 646-652; Pseudemys scripta (genet. diff. between popns.) 691-700; Clupea (harengus, pallasi) (elev. to sp. status) 714-719; Gambusia affinis (gen. structure of popns. in altered hab.) 937-945; Acris crepitans (compar. of color morphs) 995-999; Eristocophis (mcmahoni, arietans, nasicornis, gabonica), Causus maculatus, Echis carinatus, Micrurus nigrocinctus (construct cladogram, PAUP program) 1014-1020.

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FOOD, Etheostoma spectabile (effects on fitness of hatchlings from var. egg sizes) 18-30; Aprasia (parapulchella, pulchella, repens, striolata), Delma (fraseri, inornata, nasuta), Lialis (burtonis, jicari), Pygopus (lepidopodus, nigriceps) (compar. of diets) 30-39; Hexanchus griseus (stornach contents) 131-135; Pygocentrus notatus, Pristobrycon striolatus, Serrasalmus rhombeus (changes during develop.) 193-196; Darlingtonia haetiana (extreme stenophagy) 529-531; Dermochelys coriacea (food requirements) 796-798.

GENETICS, Petromyzon marinus (allelic var. in diff. age classes) 199–202; Mustelus lenticulatus, Galeorhinus australis, Squalus acanthias, Deania calcea, Centroscymnus crepidater, Etmopterus baxteri, Prionace glauca (low genet. var. in sharks) 202–207; Tilapia nilotica (heritability estimates of 19 traits) 672–679; Agkistrodon contortrix (mult. paternity) 807–811; Gambusia affinis (gen. struct. of popns.) 937–945.

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Australia, Aprasia (parapulchella, pulchella, repens,

striolata), Delma (fraseri, inornata, nasuta), Lialis (burtonis, jicari), Pygopus (lepidopodus, nigriceps) 30–39; Ctenotus (atlas, regius, robustus, uber), Egernia striolata, Eremiascincus (fasciolatus, richardsoni), Hemiergis (decresciensis, peroni), Tiliqua rugosa (S.A.), Ctenotus taeniolatus, Egernia whitii, Leiolopisma entrecasteauxii, Sphenomorphus (kosciuskoi, quoyi, tympanum), Tiliqua cassurinae (N.S.W.) 57–64; Acrochordus arafurae (N. Terr.) 238–239; Acrochordus arafurae (N. Terr.) 424–437; Ctenotus taeniolatus (N.S.W.) 445–453; Pygopodidae 525–529; Saurida (undosquamis, longimanus, sp. 1, sp. 2) (northwest shelf) 876–885.

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Brazil, Pimelodina flavipinnis 653–672; Lygodactylus klugei, Phyllopezus pollicaris, Gymnodactylus geckoides, Hemidactylus mabouia 773–786; Cnemidophorus lemniscatus 804–807.

California, Scomber japonicus 39–44; Gila bicolor mohavensis 45–52; Hexanchus griseus 131–135; Sauromalus sp., Gambelia wislizeni, Sceloporus sp., Phrynosoma sp., Eumeces gilberti?, Cnemidophorus?, Coleonyx sp. (fossils) 244–246; Mugil cephalus 275– 284; Embiotoca (jacksoni, lateralis) 311–323; Hyla regilla 802–804; Rana (aurora, boylii, cascadae, muscosa) 927–936; Squatina californica 987–994; Gobherus agassizii 1010–1012.

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Colombia, Evermannichthys metzelaari (Isla de Providencia) 157-165; Eleutherodactylus (fitzingeri, longirostris, raniformis, crassidigitus) 503-511; Osornophryne (percrassa, bufoniformis) 618-622; Pimelodina flavipinnis 653-672.

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Connecticut, Sternotherus odoratus 285-294.

Costa Rica, Atelopus varius 438-444; Eleutherodactylus (andi, fitzingeri, cuaquero, melanostictus, rayo, crassidigitus, talamancae) 503-511; Chelonia mydas 798-802.

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Cyprus, Caretta caretta 53-57.

Easter Island, Apogon chalcius n. sp. 641-645.

Ecuador, Eleutherodactylus longirostris 503-511; Osornophryne (talipes n. sp., bufoniformis) 618-622. El Salvador, Kinosternon scorpioides 285-294.

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Hispaniola, Darlingtonia haetiana 529-531; Anolis chlorocyanus 963-970.

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Idaho, Ambystoma macrodactylum columbianum 398–408; Rana pretiosa 927–936.

Illinois, Notropis (s. spilopterus, s. hypsisomatus) 122-130; Etheostoma (lynceum, zonale) 832-836.

Indian Ocean, Ceratias (tentaculatus [S. ocean], holboelli, uranoscopus), Cryptopsaras couesi 479-493; Stomias 494-503; Pterois miles 686-690.

Indiana, Eurycea n. sp. 96-108; Sternotherus odoratus 285-294; Gambusia affinis 534-536.

Iowa, Etheostoma zonale 832-836.

Italy, Padogobius martensi 213-216; Gaidropsarus mediterraneus 826-829.

Japan, Amphiprion clarkii, Centropyge tibicen, Lactoria diaphana, Dendrochirus zebra, Plectorhynchus pictus 135-139; Bufo (j. japonicus, j. formosus, torrenticola, gargarizans miyakonis) 561-579.

Kansas, Sceloporus undulatus 1–18; Etheostoma whipplei 631–641; Acris crepitans 995–999.

Kentucky, Notropis (s. spilopterus, s. hypsisomatus) 122–130.

Korea, Bufo g. gargarizans 561-579.

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Mexico, Heterandria (bimaculata, jonesi), Xiphophorus (maculatus, helleri) (Veracruz), Poeciliopsis sp., Priapella compressa, Poecilia butleri, Profundulus (labialis, punctatus) (Chiapas), Gambusia yucatana (Quin. Roo), Belonesox belizanus (Tabasco) 86-91; Hexanchus griseus (Baja Cal.) 131-135; Notropis amecae n. sp. (Jalisco), Notropis aulidion n. sp. (Durango), Notropis calientis 170-183; Cyprinodon pachycephalus n. sp. (Chihuahua) 184-192; Sceloporus aeneus 232-233; Echidna zebra, Fistularia commersonii, Mugil curema, Priacanthus cruentatus, Coryphaena hippurus, Gnathanodon speciosus, Zanclus cornutus, Arothron meleagris, Diodon holocanthus (Gulf of Cal.) 275-284; Staurotypus triborcatus (Oaxaca), Kinosternon acutum (Veracruz), K. alamosae (Sonora), K. flavescens (Chihuahua, Durango, Sonora, Tamaulipas), K. herrerai (Veracruz), K. hirtipes (Chihuahua, Durango, Guanajuato, Jalisco, Michoacan), K. integrum (Colima, Jalisco, Michoacan, Oaxaca, Queretaro, Sinaloa, Sonora, Tamaulipas), K. leucostomum (Veracruz), K. oaxacae (Oaxaca), K. scorpioides (Chiapas, Tamaulipas, Yucatan), K. sonoriense (Chihuahua) 285-294; Ictalurus lupus (Tamaulipas) 646-652; Rana aurora (Baja Cal.) 927-936; Hyla smithii (Jalisco) 1004-1006; Prietella phreatophila (Coahuila) 1024-1028.

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Mississippi, Etropus (cyclosquamus n. sp., crossotus) 140-156; Sternotherus carinatus 285-294; Etheostoma whipplei 631-641; Etheostoma (lynceum, zonale) 832-836.

Missouri, Notropis (s. spilopterus, s. hypsisomatus) 122– 130; Etheostoma juliae 536–540; Etheostoma whipplei 631–641; Etheostoma (lynceum, zonale) 832– 836.

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New Hampshire, Rana septentrionalis 239-244.

New Jersey, Pituophis melanoleucus 116–121; Etropus microstomus 140–156; Kinosternon subrubrum 285– 294; Bufo woodhousei, Hyla andersoni 454–466; Chelydra serpentina 741–756.

New Mexico, Sceloporus undulatus 1-18; Kinosternon flavescens 285-294.

New York, Notropis (s. spilopterus, s. hypsisomatus) 122-130; Etropus microstomus 140-156; Rana septentrionalis 239–244; Sternotherus odoratus 285– 294; Carcharodon carcharias, Isurus oxyrinchus, Carcharhinus (plumbeus, obscurus), Galeocerdo cuvieri, Prionace glauca, Sphyrna lewini, Alopias vulpinus 700–705.

New Zealand, Mustelus lenticulatus, Galeorhinus australis, Squalus acanthias, Deania calcea, Centroscymnus crepidater, Etmopterus baxteri, Prionace glauca

Nicaragua, Eleutherodactylus (fitzingeri, talamancae) 503-511; Cichlasoma citrinellum 1028-1030.

North Carolina, Etropus (cyclosquamus n. sp., crossotus, microstomus, rimosus) 140–156; Hypsoblennius (ionthas, hentzi), Hypleurochilus geminatus, Parablennius marmoreus 207–213; Desmognathus fuscus 235–237; Kinosternon subrubrum 285–294; Rana palustris 531–533; Desmognathus (quadramaculatus, monticola, fuscus, ochrophaeus) 731–741; Aphredoderus sayanus 1030–1031.

Ohio, Sceloporus undulatus 1–18; Eurycea (n. sp., b. bislineata, b. wilderae, b. cirrigera, b. rivicola) 96–108; Notropis (s. spilopterus, s. hypsisomatus) 122–130; Morone (chrysops × americana) 196–199; Nerodia sipedon insularum 757–772; Etheostoma (lyncum, zonale) 832–836.

Oklahoma, Etheostoma (whipplei, radiosum) 631-641; Heterodon (nasicus, platyrhinos), Coluber or Masticophis, Elaphe vulpina, Lampropeltis (getulus, triangulum), Pituophis melanoleucus, Thamnophis cf. radix, Nerodia sp. indet. (fossils) 811-812.

Oregon, Rana (aurora, boylii, cascadae, pretiosa) 927-936.

Pacific, Ceratias (tentaculatus [S. ocean], holboelli, uranoscopus), Cryptopsaras couesi 479–493; Stomias 494–503; Centropomus (medius, nigrescens, viridis, unionensis, armatus, robalito) (E.) 579–611; Pterois volitans 686–690; Clupea pallasi (N.) 714–719.

Panama, Priacanthus cruentatus, Coryphaena hippurus, Alutera scripta, Arothron (hispidus, meleagris) 275–284; Kinosternon leucostomum 285–294; Eleutherodactylus (fitzingeri, longirostris, raniformis, melanostictus, monnichorum, crassidigitus) 503–511.

Pennsylvania, Notropis (s. spilopterus, s. hypsisomatus) 122–130; Ambystoma jeffersonianum, Rana sylvatica 454–466; Clemmys insculpta 1001–1004.

Peru, Aguarunichthys torosus, Pimelodina flavipinnis 653-672.

Philippine Is., Zanclus cornutus 275-284; Manacopus falcifer 305-310.

Puerto Rico, Cyclura nubila (introd. to Isla Magueyes) 65-69; Eleutherodactylus coqui 520-523.

Revillagigedo Is., Priacanthus (alalaua, boops) 275-284.

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South Carolina, Sceloporus undulatus 1–18; Etropus (cyclosquamus n. sp., crossotus, microstomus, rimosus) 140–156; Rana sphenocephala 249–253; Pseudemys scripta 691–700; Gambusia affinis 937–945.

Surinam, Chelonia mydas 798-802.

Taiwan, Bufo bankorensis 561-579.

Tennessee, Sternotherus (minor, odoratus) 285-294; Etheostoma (lynceum, zonale) 832-836.

Texas, Sceloporus undulatus 1–18; Etheostoma spectabile 18–30; Gambusia (affinis, nobilis), Fundulus zebrinus, Cyprinodon variegatus, Percina macrolepida 86–91; Hybopsis aestivalis, Nocomis leptocephalus, Notemigonus crysoleucas, Notropis (amabilis, buchanani, camurus, longirostris, lutrensis, oxyrhynchus, potteri, shumardi, venustus), Pimephales notatus, Carpiodes carpio, Ictalurus punctatus, Noturus gyrinus, Gambusia affinis, Lepomis (humilis, macrochirus), Percina sciera, Mugil cephalus 226–231; Etheostoma whipplei 631–641; Ictalurus (lupus, punctatus) 646–652; Hemidactylus turcicus 956–962; Hobrookia propinqua 980–986; Thamnophis marcianus 999–1001; Sceloporus undulatus 1012–1014.

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Vermont, Eurycea bislineata 96-108; Rana septentrionalis 239-244.

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Virginia, Eurycea bislineata 96-108; Etropus microstomus 140-156; Chelydra serpentina, Malaclemys terrapin, Kinosternon subrubrum, Sternotherus odoratus, Clemmys guttata, Trionyx (muticus, spiniferus), Chrysemys picta 741-756; Mustelus canis 829-832; Opsanus tau 910-915.

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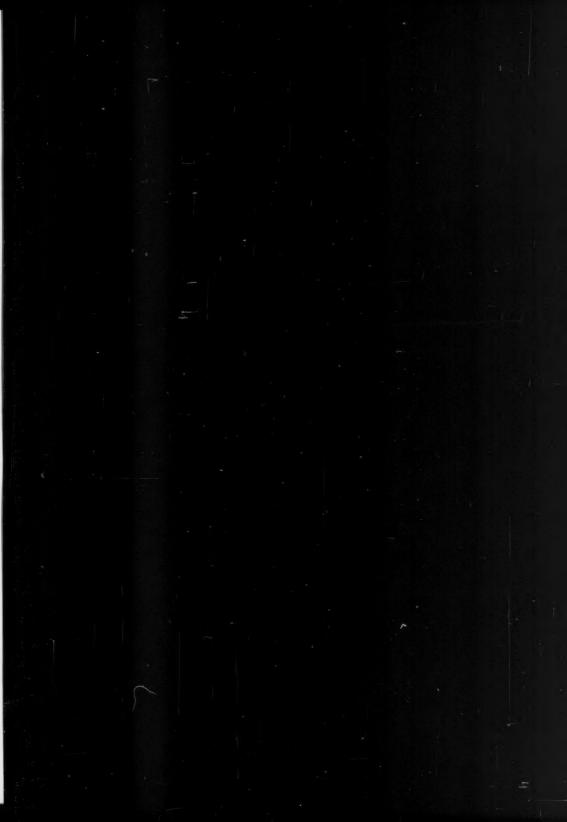
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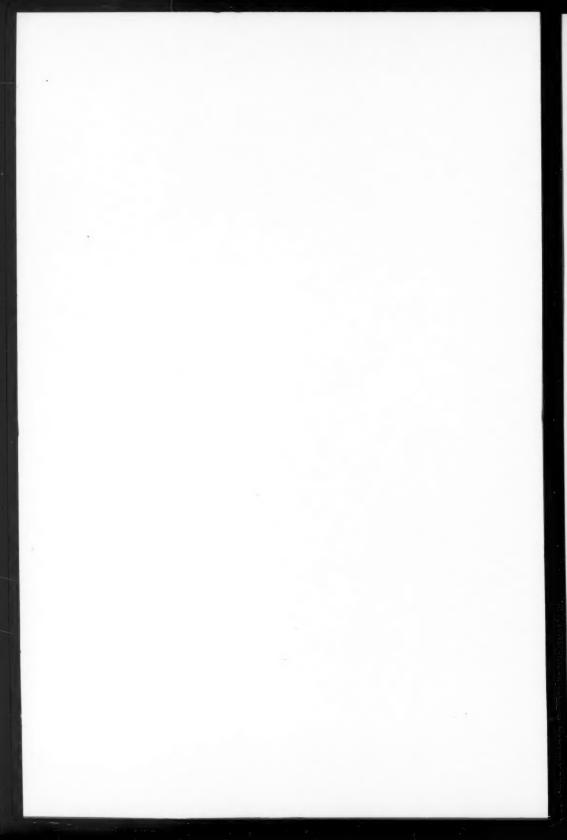
SYSTEMATICS, Heterandria (formosa, bimaculata, jonesi), Gambusia (affinis, nobilis, yucatana), Poeciliopsis sp., Xiphophorus (maculatus, helleri), Priapella compressa, Poecilia (butleri, reticulata, latipinna), Belonesox belizanus, Profundulus (labialis, punctatus), Fundulus zebrinus, Cyprinodon variegatus, Percina macrolepida (lepidonts on scales as taxon. charc.) 86-91; Eurycea (n. sp., b. bislineata, b. wilderae, b. cirrigera, b. rivicola) (electroph. detection of cryptic species) 96-108; Notropis (s. spilopterus, s. hypsisomatus) (invalid subspp.) 122-130; Etropus (cyclosquamus n. sp., crossotus, microstomus, rimosus) 140-156; Evermannichthys (metzelaari, spongicola) (status of unique specimens) 157-165; Leptobrotula n. gen. breviventralis n. sp. 166-170; Notropis (calientis, amecae n. sp., aulidion n. sp.) 170-183; Cyprinodon pachycephalus n. sp. 184-192; Kinosternon (bauri, subrubrum, herrerai, hirtipes, sonoriense, flavescens, alamosae, integrum, scorpioides, oaxacae, acutum, leucostomum), Staurotypus triporcatus, Claudius angustatus, Sternotherus (odoratus, carinatus, depressus, minor) (electroph. compar. of family) 285-294; Oryzias mekongensis (Mekong basin, Thailand) 473-478; Ceratias (tentaculatus, holboelli, uranoscopus), Cryptopsaras couesi (rev. of family) 479-493; Stomias (brevibarbatus, danae, longibarbatus, pacificus, colubrinus, lampropeltis, affinis, nebulosus, atriventer, boa, gracilis) (phylogen. anal., including evid. for synonymy of Macrostomias) 494-503; Eleutherodactylus (andi, fitzingeri, longirostris, raniformis, cuaquero, melanostictus, monnichorum, rayo, crassidigitus, talamancae) (cladogram [PAUP program] & phylo-

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